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NEWS	4	Aug 08	PHARMAMarketLetter(PHARMAML) - new on STN
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NEWS	6	Aug 26	Sequence searching in REGISTRY enhanced
NEWS	7	Sep 03	JAPIO has been reloaded and enhanced
NEWS	8	Sep 16	Experimental properties added to the REGISTRY file
NEWS	9	Sep 16	CA Section Thesaurus available in CAPLUS and CA
NEWS	10	Oct 01	CASREACT Enriched with Reactions from 1907 to 1985
NEWS	11	Oct 24	BEILSTEIN adds new search fields
NEWS	12	Oct 24	Nutraceuticals International (NUTRACEUT) now available on STN
NEWS	13	Nov 18	DKILIT has been renamed APOLLIT
NEWS	14	Nov 25	More calculated properties added to REGISTRY
NEWS	15	Dec 04	CSA files on STN
NEWS	16	Dec 17	PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS	17	Dec 17	TOXCENTER enhanced with additional content
NEWS	18	Dec 17	Adis Clinical Trials Insight now available on STN
NEWS	19	Jan 29	Simultaneous left and right truncation added to COMPENDEX, ENERGY, INSPEC
NEWS	20	Feb 13	CANCERLIT is no longer being updated
NEWS	21	Feb 24	METADEX enhancements
NEWS	22	Feb 24	PCTGEN now available on STN
NEWS	23	Feb 24	TEMA now available on STN
NEWS	24	Feb 26	NTIS now allows simultaneous left and right truncation
NEWS	25	Feb 26	PCTFULL now contains images
NEWS	26	Mar 04	SDI PACKAGE for monthly delivery of multifile SDI results
NEWS	27	Mar 20	EVENTLINE will be removed from STN
NEWS	28	Mar 24	PATDPAFULL now available on STN
NEWS	29	Mar 24	Additional information for trade-named substances without structures available in REGISTRY
NEWS	30	Apr 11	Display formats in DGENE enhanced
NEWS	31	Apr 14	MEDLINE Reload
NEWS	32	Apr 17	Polymer searching in REGISTRY enhanced
NEWS	33	Jun 13	Indexing from 1947 to 1956 added to records in CA/CAPLUS
NEWS	34	Apr 21	New current-awareness alert (SDI) frequency in WPIDS/WPINDEX/WPIX
NEWS	35	Apr 28	RDISCLOSURE now available on STN
NEWS	36	May 05	Pharmacokinetic information and systematic chemical names

added to PHAR

NEWS 37 May 15 MEDLINE file segment of TOXCENTER reloaded

NEWS 38 May 15 Supporter information for ENCOMPPAT and ENCOMPLIT updated

NEWS 39 May 16 CHEMREACT will be removed from STN

NEWS 40 May 19 Simultaneous left and right truncation added to WSCA

NEWS 41 May 19 RAPRA enhanced with new search field, simultaneous left and right truncation

NEWS 42 Jun 06 Simultaneous left and right truncation added to CBNB

NEWS 43 Jun 06 PASCAL enhanced with additional data

NEWS 44 Jun 20 2003 edition of the FSTA Thesaurus is now available

NEWS EXPRESS April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003

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=> s C3H and coumarate and lignin

L1 8 C3H AND COUMARATE AND LIGNIN

=> d l1 1-8 ibib ab

L1 ANSWER 1 OF 8 AGRICOLA Compiled and distributed by the National

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(2003)

ACCESSION NUMBER: 2003:7059 AGRICOLA  
DOCUMENT NUMBER: IND23300724  
TITLE: Changes in secondary metabolism and deposition of an unusual \*\*\*lignin\*\*\* in the ref8 mutant of Arabidopsis.  
AUTHOR(S): Franke, R.; Hemm, M.R.; Denault, J.W.; Ruegger, M.O.; Humphreys, J.M.; Chapple, C.  
AVAILABILITY: DNAL (QK710.P68)  
SOURCE: The Plant journal : for cell and molecular biology, Apr 2002. Vol. 30, No. 1. p. 47-59  
Publisher: Oxford : Blackwell Sciences Ltd.  
ISSN: 0960-7412  
NOTE: Includes references  
PUB. COUNTRY: England; United Kingdom  
DOCUMENT TYPE: Article  
FILE SEGMENT: Non-U.S. Imprint other than FAO  
LANGUAGE: English

AB The end products of the phenylpropanoid pathway play important roles in plant structure and development as well as in plant defense mechanisms against biotic and abiotic stresses. From a human perspective, phenylpropanoid pathway-derived metabolites influence both human health and the potential utility of plants in agricultural contexts. The last known enzyme of the phenylpropanoid pathway that has not been characterized is p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ). By screening for plants that fail to accumulate soluble fluorescent phenylpropanoid secondary metabolites, we have identified a number of Arabidopsis mutants that display a reduced epidermal fluorescence (ref) phenotype. We have now shown that the ref8 mutant is defective in the gene encoding \*\*\*C3H\*\*\* . Phenotypic characterization of the ref8 mutant has revealed that the lack of \*\*\*C3H\*\*\* activity in the mutant leads to diverse changes in phenylpropanoid metabolism. The ref8 mutant accumulates p- \*\*\*coumarate\*\*\* esters in place of the sinapoylmalate found in wild-type plants. The mutant also deposits a \*\*\*lignin\*\*\* formed primarily from p-coumaryl alcohol, a monomer that is at best a minor component in the \*\*\*lignin\*\*\* of other plants. Finally, the mutant displays developmental defects and is subject to fungal attack, suggesting that phenylpropanoid pathway products downstream of REF8 may be required for normal plant development and disease resistance.

L1 ANSWER 2 OF 8 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.  
(2003)

ACCESSION NUMBER: 2003:7058 AGRICOLA  
DOCUMENT NUMBER: IND23300722  
TITLE: The Arabidopsis REF8 gene encodes the 3-hydroxylase of phenylpropanoid metabolism.  
AUTHOR(S): Franke, R.; Humphreys, J.M.; Hemm, M.R.; Denault, J.W.; Ruegger, M.O.; Cusumano, J.C.; Chapple, C.  
AVAILABILITY: DNAL (QK710.P68)  
SOURCE: The Plant journal : for cell and molecular biology, Apr 2002. Vol. 30, No. 1. p. 33-45  
Publisher: Oxford : Blackwell Sciences Ltd.  
ISSN: 0960-7412

NOTE: Includes references  
PUB. COUNTRY: England; United Kingdom  
DOCUMENT TYPE: Article  
FILE SEGMENT: Non-U.S. Imprint other than FAO  
LANGUAGE: English

AB The activity of p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ) is thought to be essential for the biosynthesis of \*\*\*lignin\*\*\* and many other phenylpropanoid pathway products in plants; however, no conditions suitable for the unambiguous assay of the enzyme are known. As a result, all attempts to purify the protein and clone its corresponding gene have failed. By screening for plants that accumulate reduced levels of soluble fluorescent phenylpropanoid secondary metabolites, we have identified a number of Arabidopsis mutants that display a reduced epidermal fluorescence (ref) phenotype. Using radiotracer-feeding experiments, we have determined that the ref8 mutant is unable to synthesize caffeic acid, suggesting that the mutant is defective in a gene required for the activity or expression of \*\*\*C3H\*\*\*. We have isolated the REF8 gene using positional cloning methods, and have verified that it encodes \*\*\*C3H\*\*\* by expression of the wild-type gene in yeast. Although many previous reports in the literature have suggested that \*\*\*C3H\*\*\* is a phenolase, the isolation of the REF8 gene demonstrates that the enzyme is actually a cytochrome P450-dependent monooxygenase. Although the enzyme accepts p- \*\*\*coumarate\*\*\* as a substrate, it also exhibits significant activity towards other p-hydroxylated substrates. These data may explain the previous difficulties in identifying \*\*\*C3H\*\*\* activity in plant extracts and they indicate that the currently accepted version of the \*\*\*lignin\*\*\* biosynthetic pathway is likely to be incorrect.

L1 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
ACCESSION NUMBER: 2003:15437 BIOSIS  
DOCUMENT NUMBER: PREV200300015437  
TITLE: Trends in \*\*\*lignin\*\*\* modification: A comprehensive analysis of the effects of genetic manipulations/mutations on lignification and vascular integrity.  
AUTHOR(S): Anterola, Aldwin M.; Lewis, Norman G. (1)  
CORPORATE SOURCE: (1) Institute of Biological Chemistry, Washington State University, Pullman, WA, 99164-6340, USA: lewisn@wsu.edu USA  
SOURCE: Phytochemistry (Amsterdam), (October 2002, 2002) Vol. 61, No. 3, pp. 221-294. print.  
ISSN: 0031-9422.  
DOCUMENT TYPE: General Review  
LANGUAGE: English

AB A comprehensive assessment of \*\*\*lignin\*\*\* configuration in transgenic and mutant plants is long overdue. This review thus undertook the systematic analysis of trends manifested through genetic and mutational manipulations of the various steps associated with monolignol biosynthesis; this included consideration of the downstream effects on organized \*\*\*lignin\*\*\* assembly in the various cell types, on vascular function/integrity, and on plant growth and development. As previously noted for dirigent protein (homologs), distinct and sophisticated monolignol forming metabolic networks were operative in various cell types, tissues and organs, and form the cell-specific guaiacyl (G) and guaiacyl-syringyl (G-S) enriched \*\*\*lignin\*\*\* biopolymers, respectively. Regardless of cell type undergoing lignification, carbon allocation to the different monolignol pools is apparently determined by a combination of phenylalanine availability and cinnamate-4-hydroxylase/"p-

\*\*\*coumarate\*\*\* -3-hydroxylase" (C4H/ \*\*\*C3H\*\*\* ) activities, as revealed by transcriptional and metabolic profiling. Downregulation of either phenylalanine ammonia lyase or cinnamate-4-hydroxylase thus predictably results in reduced \*\*\*lignin\*\*\* levels and impaired vascular integrity, as well as affecting related (phenylpropanoid-dependent) metabolism. Depletion of \*\*\*C3H\*\*\* activity also results in reduced \*\*\*lignin\*\*\* deposition, albeit with the latter being derived only from hydroxyphenyl (H) units, due to both the guaiacyl (G) and syringyl (S) pathways being blocked. Apparently the cells affected are unable to compensate for reduced G/S levels by increasing the amounts of H-components. The downstream metabolic networks for G- \*\*\*lignin\*\*\* enriched formation in both angiosperms and gymnosperms utilize specific cinnamoyl CoA O-methyltransferase (CCOMT), 4- \*\*\*coumarate\*\*\* :CoA ligase (4CL), cinnamoyl CoA reductase (CCR) and cinnamyl alcohol dehydrogenase (CAD) isoforms: however, these steps neither affect carbon allocation nor H/G designations, this being determined by C4H/ \*\*\*C3H\*\*\* activities. Such enzymes thus fulfill subsidiary processing roles, with all (except CCOMT) apparently being bifunctional for both H and G substrates. Their severe downregulation does, however, predictably result in impaired monolignol biosynthesis, reduced \*\*\*lignin\*\*\* deposition/vascular integrity, (upstream) metabolite build-up and/or shunt pathway metabolism. There was no evidence for an alternative acid/ester O-methyltransferase (AEOMT) being involved in \*\*\*lignin\*\*\* biosynthesis. The G/S \*\*\*lignin\*\*\* pathway networks are operative in specific cell types in angiosperms and employ two additional biosynthetic steps to afford the corresponding S components, i.e. through introduction of an hydroxyl group at C-5 and its subsequent O-methylation. (These enzymes were originally classified as ferulate-5-hydroxylase (F5H) and caffeate O-methyltransferase (COMT), respectively.) As before, neither step has apparently any role in carbon allocation to the pathway; hence their individual downregulation/manipulation, respectively, gives either a G enriched \*\*\*lignin\*\*\* or formation of the well-known S-deficient bm3 " \*\*\*lignin\*\*\* " mutant, with cell walls of impaired vascular integrity. In the latter case, COMT downregulation/mutation apparently results in utilization of the isoelectronic 5-hydroxyconiferyl alcohol species albeit in an unsuccessful attempt to form G-S \*\*\*lignin\*\*\* proper. However, there is apparently no effect on overall G content, thereby indicating that deposition of both G and S moieties in the G/S \*\*\*lignin\*\*\* forming cells are kept spatially, and presumably temporally, fully separate. Downregulation/mutation of further downstream steps in the G/S network (i.e. utilizing 4CL, CCR and CAD isoforms) gives predictable effects in terms of their subsidiary processing roles: while severe downregulation of 4CL gave phenotypes with impaired vascular integrity due to reduced monolignol supply, there was no evidence in support of increased growth and/or enhanced cellulose biosynthesis. CCR and CAD downregulation/mutations also established that a depletion in monolignol supply reduced both \*\*\*lignin\*\*\* contents and vascular integrity, with a concomitant shift towards (upstream) metabolite build-up and/or shunting. The extraordinary claims of involvement of surrogate monomers (2-methoxybenzaldehyde, feruloyl tyramine, vanillic acid, etc.) in lignification were fully disproven and put to rest, with the investigators themselves having largely retracted former claims. Furthermore analysis of the well-known bm1 mutation, a presumed CAD disrupted system, apparently revealed that both G and S \*\*\*lignin\*\*\* components were reduced. This seems to imply that there is no monolignol specific dehydrogenase, such as the recently described sinapyl alcohol dehydrogenase (SAD) for sinapyl alcohol formation. Nevertheless, different CAD isoforms of differing

homology seem to be operative in different lignifying cell types, thereby giving the G-enriched and G/S-enriched \*\*\*lignin\*\*\* biopolymers, respectively. For the G- \*\*\*lignin\*\*\* forming network, however, the CAD isoform is apparently catalytically less efficient with all three monolignols than that additionally associated with the corresponding G/S \*\*\*lignin\*\*\* forming network(s), which can more efficiently use all three monolignols. However, since CAD does not determine either H, G, or S designation, it again serves in a subsidiary role-albeit using different isoforms for different cell wall developmental and cell wall type responses. The results from this analysis contrasts further with speculations of some early investigators, who had viewed \*\*\*lignin\*\*\* assembly as resulting from non-specific oxidative coupling of monolignols and subsequent random polymerization. At that time, though, the study of the complex biological (biochemical) process of \*\*\*lignin\*\*\* assembly had begun without any of the (bio)chemical tools to either address or answer the questions posed as to how its formation might actually occur. Today, by contrast, there is growing recognition of both sophisticated and differential control of monolignol biosynthetic networks in different cell types, which serve to underscore the fact that complexity of assembly need not be confused any further with random formation. Moreover, this analysis revealed another factor which continues to cloud interpretations of \*\*\*lignin\*\*\* downregulation/mutational analyses, namely the serious technical problems associated with all aspects of \*\*\*lignin\*\*\* characterization, whether for \*\*\*lignin\*\*\* quantification, isolation of \*\*\*lignin\*\*\* -enriched preparations and/or in determining monomeric compositions. For example, in the latter analyses, some 50-90% of the \*\*\*lignin\*\*\* components still cannot be detected using current methodologies, e.g. by thioacidolysis cleavage and nitrobenzene oxidative cleavage. This deficiency in \*\*\*lignin\*\*\* characterization thus represents one of the major hurdles remaining in delineating how \*\*\*lignin\*\*\* assembly (in distinct cell types) and their configuration actually occurs.

L1 ANSWER 4 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
 ACCESSION NUMBER: 2002:298051 BIOSIS  
 DOCUMENT NUMBER: PREV200200298051  
 TITLE: Changes in secondary metabolism and deposition of an unusual \*\*\*lignin\*\*\* in the ref8 mutant of arabidopsis.  
 AUTHOR(S): Franke, Rochus; Hemm, Matthew R.; Denault, Jeff W.; Ruegger, Max O.; Humphreys, John M.; Chapple, Clint (1)  
 CORPORATE SOURCE: (1) Department of Biochemistry, Purdue University, West Lafayette, IN, 47907-1153: chapple@purdue.edu USA  
 SOURCE: Plant Journal, (April, 2002) Vol. 30, No. 1, pp. 47-59.  
<http://www.blackwell-science.com/cgilib/jnlpage.bin?Journal=TPJ&File=TPJ&Page=aims.print>.  
 ISSN: 0960-7412.  
 DOCUMENT TYPE: Article  
 LANGUAGE: English

AB The end products of the phenylpropanoid pathway play important roles in plant structure and development, as well as in plant defense mechanisms against biotic and abiotic stresses. From a human perspective, phenylpropanoid pathway-derived metabolites influence both human health and the potential utility of plants in agricultural contexts. The last known enzyme of the phenylpropanoid pathway that has not been characterized is p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ). By screening for plants that fail to accumulate soluble fluorescent phenylpropanoid secondary metabolites, we have identified a number of

Arabidopsis mutants that display a reduced epidermal fluorescence (ref) phenotype. We have now shown that the ref8 mutant is defective in the gene encoding \*\*\*C3H\*\*\*. Phenotypic characterization of the ref8 mutant has revealed that the lack of \*\*\*C3H\*\*\* activity in the mutant leads to diverse changes in phenylpropanoid metabolism. The ref8 mutant accumulates p- \*\*\*coumarate\*\*\* esters in place of the sinapylmalate found in wild-type plants. The mutant also deposits a \*\*\*lignin\*\*\* formed primarily from p-coumaryl alcohol, a monomer that is at best a minor component in the \*\*\*lignin\*\*\* of other plants. Finally, the mutant displays developmental defects and is subject to fungal attack, suggesting that phenylpropanoid pathway products downstream of REF8 may be required for normal plant development and disease resistance.

L1 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
ACCESSION NUMBER: 2002:298050 BIOSIS  
DOCUMENT NUMBER: PREV200200298050  
TITLE: The Arabidopsis REF8 gene encodes the 3-hydroxylase of phenylpropanoid metabolism.  
AUTHOR(S): Franke, Rochus; Humphreys, John M.; Hemm, Matthew R.; Denault, Jeff W.; Ruegger, Max O.; Cusumano, Joanne C.; Chapple, Clint (1)  
CORPORATE SOURCE: (1) Department of Biochemistry, Purdue University, West Lafayette, IN, 47907-1153: chapple@purdue.edu USA  
SOURCE: Plant Journal, (April, 2002) Vol. 30, No. 1, pp. 33-45.  
<http://www.blackwell-science.com/cgilib/jnlpage.bin?Journal=TPJ&File=TPJ&Page=aims>. print.  
ISSN: 0960-7412.  
DOCUMENT TYPE: Article  
LANGUAGE: English

AB The activity of p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ) is thought to be essential for the biosynthesis of \*\*\*lignin\*\*\* and many other phenylpropanoid pathway products in plants; however, no conditions suitable for the unambiguous assay of the enzyme are known. As a result, all attempts to purify the protein and clone its corresponding gene have failed. By screening for plants that accumulate reduced levels of soluble fluorescent phenylpropanoid secondary metabolites, we have identified a number of Arabidopsis mutants that display a reduced epidermal fluorescence (ref) phenotype. Using radiotracer-feeding experiments, we have determined that the ref8 mutant is unable to synthesize caffeic acid, suggesting that the mutant is defective in a gene required for the activity or expression of \*\*\*C3H\*\*\*. We have isolated the REF8 gene using positional cloning methods, and have verified that it encodes \*\*\*C3H\*\*\* by expression of the wild-type gene in yeast. Although many previous reports in the literature have suggested that \*\*\*C3H\*\*\* is a phenolase, the isolation of the REF8 gene demonstrates that the enzyme is actually a cytochrome P450-dependent monooxygenase. Although the enzyme accepts p- \*\*\*coumarate\*\*\* as a substrate, it also exhibits significant activity towards other p-hydroxylated substrates. These data may explain the previous difficulties in identifying \*\*\*C3H\*\*\* activity in plant extracts and they indicate that the currently accepted version of the \*\*\*lignin\*\*\* biosynthetic pathway is likely to be incorrect.

L1 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2002:395298 CAPLUS  
DOCUMENT NUMBER: 137:122269  
TITLE: Changes in secondary metabolism and deposition of an unusual \*\*\*lignin\*\*\* in the ref8 mutant of

Arabidopsis  
AUTHOR(S): Franke, Rochus; Hemm, Matthew R.; Denault, Jeff W.;  
Ruegger, Max O.; Humphreys, John M.; Chapple, Clint  
CORPORATE SOURCE: Department of Biochemistry, Purdue University, West  
Lafayette, IN, 47907-1153, USA  
SOURCE: Plant Journal (2002), 30(1), 47-59  
CODEN: PLJUED; ISSN: 0960-7412  
PUBLISHER: Blackwell Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The end products of the phenylpropanoid pathway play important roles in plant structure and development, as well as in plant defense mechanisms against biotic and abiotic stresses. Phenylpropanoid pathway-derived metabolites influence both human health and the potential utility of plants in agricultural contexts. The last known enzyme of the phenylpropanoid pathway that has not been characterized is p-  
\*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ). By screening for plants that fail to accumulate sol. fluorescent phenylpropanoid secondary metabolites, a no. of Arabidopsis mutants that display a reduced epidermal fluorescence (ref) phenotype was identified. The ref8 mutant is defective in the gene encoding \*\*\*C3H\*\*\* . Phenotypic characterization of the ref8 mutant has revealed that the lack of \*\*\*C3H\*\*\* activity in the mutant leads to diverse changes in phenylpropanoid metab. The ref8 mutant accumulates p- \*\*\*coumarate\*\*\* esters in place of the sinapoylmalate found in wild-type plants. The mutant also deposits a \*\*\*lignin\*\*\* formed primarily from p-coumaroyl alc., a monomer that is at best a minor component in the \*\*\*lignin\*\*\* of other plants. Finally, the mutant displays developmental defects and is subject to fungal attack, suggesting that phenylpropanoid pathway products downstream of REF8 may be required for normal plant development and disease resistance.

REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:395296 CAPLUS  
DOCUMENT NUMBER: 138:2289  
TITLE: The Arabidopsis REF8 gene encodes the 3-hydroxylase of  
phenylpropanoid metabolism  
AUTHOR(S): Franke, Rochus; Humphreys, John M.; Hemm, Matthew R.;  
Denault, Jeff W.; Ruegger, Max O.; Cusumano, Joanne  
C.; Chapple, Clint  
CORPORATE SOURCE: Department of Biochemistry, Purdue University, West  
Lafayette, IN, 47907-1153, USA  
SOURCE: Plant Journal (2002), 30(1), 33-45  
CODEN: PLJUED; ISSN: 0960-7412  
PUBLISHER: Blackwell Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The activity of p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ) is thought to be essential for the biosynthesis of \*\*\*lignin\*\*\* and many other phenylpropanoid pathway products in plants; however, no conditions suitable for the unambiguous assay of the enzyme are known. As a result, all attempts to purify the protein and clone its corresponding gene have failed. By screening for plants that accumulate reduced levels of sol. fluorescent phenylpropanoid secondary metabolites, the authors have identified a no. of Arabidopsis mutants that display a reduced epidermal fluorescence (ref) phenotype. Using radiotracer-feeding expts., the



authors have detd. that the ref8 mutant is unable to synthesize caffeic acid, suggesting that the mutant is defective in a gene required for the activity or expression of \*\*\*C3H\*\*\*. The authors have isolated the REF8 gene using positional cloning methods, and have verified that it encodes \*\*\*C3H\*\*\* by expression of the wild-type gene in yeast. Although many previous reports in the literature have suggested that \*\*\*C3H\*\*\* is a phenolase, the isolation of the REF8 gene demonstrates that the enzyme is actually a cytochrome P 450-dependent monooxygenase. Although the enzyme accepts p- \*\*\*coumarate\*\*\* as a substrate, it also exhibits significant activity towards other p-hydroxylated substrates. These data may explain the previous difficulties in identifying \*\*\*C3H\*\*\* activity in plant exts. and they indicate that the currently accepted version of the \*\*\*lignin\*\*\* biosynthetic pathway is likely to be incorrect.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:142870 CAPLUS  
 DOCUMENT NUMBER: 136:197192  
 TITLE: Arabidopsis gene encoding mutant p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*c3h\*\*\* ) and functions in phenylpropanoid metabolism  
 INVENTOR(S): Chapple, Clinton C. S.; Franke, Rochus; Ruegger, Max O.  
 PATENT ASSIGNEE(S): Purdue Research Foundation, USA  
 SOURCE: PCT Int. Appl., 102 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002014497	A2	20020221	WO 2001-US25592	20010816
WO 2002014497	A3	20030313		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001084952	A5	20020225	AU 2001-84952	20010816
US 2002062496	A1	20020523	US 2001-931267	20010816
PRIORITY APPLN. INFO.:			US 2000-225554P	P 20000816
			WO 2001-US25592	W 20010816

AB The present invention is directed to a method for altering secondary metab. in plants, specifically phenylpropanoid metab. The present invention is further directed to a mutant p- \*\*\*coumarate\*\*\* 3-hydroxylase ( \*\*\*C3H\*\*\* ) gene, referred to herein as the ref8 gene, its protein product which can be used to prep. gene constructs and transgenic plants. The gene constructs and transgenic plants are further aspects of the present invention. The phenotypic characterization of the

ref8 mutant provided extremely strong evidence that the REF8 gene encodes a protein required for the activity or expression of \*\*\*C3H\*\*\*. The ref8 mutation affects \*\*\*lignin\*\*\* biosynthesis qual. The changes in cell wall degradability in the ref8 mutant clearly demonstrate the potential value of down-regulation of \*\*\*C3H\*\*\* polypeptide activity in plants important to agriculture and forestry. It is clear that similar changes in cell wall characteristics would lead to improved utilization of lignocellulosic material in terms of pulp and paper prodn., and in agricultural process including, but not limited to, the use of forages for animal feedstocks, and the prodn. of other downstream products such as ethanol produced through fermn. processes. The invention also relates to identification of substrate for \*\*\*C3H\*\*\*. The invention also shows that gene REF8 corresponds to T20B5.9, a gene also annotated as CYP98A3, a putative P 450.

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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.84	29.33

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
0.00	-1.95

CA SUBSCRIBER PRICE

STN INTERNATIONAL LOGOFF AT 11:53:21 ON 24 JUN 2003